REMARKS

Initially, Applicants would like to thank the Examiner for the courtesies that were extended during the recent in person interview held on April 5, 2006. The amendments made by this paper are consistent with the proposals discussed during the interview.

The non-final Office Action mailed January 4, 2006 considered and rejected claims 1-30. Claims 1-5, 12-14, 17-24, 26-30 were rejected under 35 U.S.C. 102(e) as being anticipated by Balabine (U.S. Patent No. 6,442,548). Claim 6 was rejected under 35 U.S.C. 103(a) as being unpatentable over Balabine (U.S. Patent No. 6,442,548) in view of Traversat (U.S. Patent No. 6,366,943). Claims 7, 15, and 25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Balabine (U.S. Patent No. 6,442,548) in view of Omoigui (U.S. Patent Publ. No. 2003/0126136). Claims 8 and 16 were rejected under 35 U.S.C. 103(a) as being unpatentable over Balabine (U.S. Patent No. 6,442,548) in view of Braden-Harder (U.S. Patent No. 5,630,121). Claim 9 was rejected under 35 U.S.C. 103(a) as being unpatentable over Balabine (U.S. Patent No. 6,442,548) in view of Malkemus (U.S. Patent No. 5,619,692). Claims 10 and 11 were rejected under 35 U.S.C. 103(a) as being unpatentable over Balabine (U.S. Patent No. 6,442,548).[1]

Claims 1-30 were further rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the written description requirement for using the term "data view" which was not found in the originally filed specification. Claims 2-4, 14, 15, 18-20, 23-25 and 28 were further rejected under 35 U.S.C. § 112, second paragraph for various indefiniteness and antecedent basis reasons. In light of the above amendments to the claims, Applicants respectfully submit that these rejections are overcome.

In addition, the drawings were objected to as containing reference characters not mentioned in the description and not including reference characters mentioned in the description. In light of the above amendments to the specification, Applicants respectfully submit that the objection is now moot.

[1] Although the prior art status of the cited art is not being challenged at this time, Applicants reserve the right to challenge the prior art status of the cited art at any appropriate time, should it arise. Accordingly, any arguments and amendments made herein should not be construed as acquiescing to any prior art status of the cited art.

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By this paper, claims 2-4, 7-9, 12, 14-16, 18-21, 29 and 30 have been amended, claims 31-36 added, and claims 1, 5, 6, 10, 11, 13, 17 and 22-28 cancelled.[2] Accordingly, following this paper, claims 2-4, 7-9, 12, 14-16, 18-21 and 29-39 are pending, of which claims 31, 37, 37 and 39 are the only independent claims at issue.

As discussed during the interview, the present invention is directed to embodiments for accessing database objects based on the relationships between attributes of the various objects within the database. As recited in claim 31, for example, database objects are stored which each have corresponding attributes. Relationships linking attributes of the objects are also defined by creating pointers linking each object having a defined attribute relationship with another object, and such that the defined attribute relationships create linked paths between the objects, as defined by the attributes. The defined relationships have defined names, and further include relationships other than parent-child relationships of a directory hierarchy and enable objects of different types to be linked by the attribute relationships. A client request to access a requested object is also received and has a format of a location path expression that includes a first expression component reciting a view name that is a particular defined name of a particular one of the defined attribute relationships. The location path expression also includes at least one path element defining one of the objects related by the defined attribute relationship and that defines a portion of a linked path to the requested object. The client request that includes the location path expression is then processed to locate the requested object and the requested object is returned to the client along with any other data specified in the location path expression.

Claim 37 is directed to a computer program product having physical computer-readable media that uses computer executable instructions to implement a method corresponding to method 31. Claims 38 and 39 are directed to a method and computer program product, respectively, and generally correspond to the method of claim 31, but are recited from the perspective of a client that forms the request and receives the requested objects, whereas claims 31 and 37 are recited from the perspective of the server.

As further noted during the interview, Applicants respectfully submit that the amended claims are clearly distinguished over the art of record. For example, while the Balabine

[2] Support for the claim amendments and new claims can be found throughout the specification as originally filed. By way of example and not limitation, the amendments and new claims are supported by the disclosure within paragraphs 15-24, 26, 29 and 30 and in Figures 2, 4, 5 and 6, as well as in the originally filed claims.

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reference is generally directed to retrieving objects from a database, it fails to teach or suggest, among other things, defining relationships having a defined name that comprise relationships other than parent-child relationships of a directory hierarchy, and receiving a request that includes a first expression component that recites a view name that is a particular defined name of a particular one of the defined attribute relationships, as recited in combination with the other claimed elements.

In particular, Balabine teaches a database interface (IXFS) for use with applications that are otherwise unable to connect to and retrieve objects from a database. (Col. 5, ll. 5-19). The interface sits between the application and the database and monitors all requests issued by the application to access files. (Col. 5, ll. 23-25). When the application seeks to access information in the database, the interface system translates the file request into a database query format that is understandable by the database. (Col. 5, ll. 26-29). The data is then returned to the application and represented as one or more file system objects within a directory hierarchical arrangement. (Col. 5, ll. 11-13, 29-32; Figs. 5A-5C).

More specifically, a database is maintained which stores a collection of tables that have rows of data which may be presented to the user as a file system object. (Col. 7, ll. 13-19; Fig. 1). The interface includes an extension module (BEM) which interacts with the database and presents an emulated file system to the application by encapsulating the collection of tables. (Col. 7, ll. 5-16). For each table and table entity in the database, the extension module creates a file object that includes an object name, the type of object, and either the data object or a link to the data object. (Col. 7, ll. 19-34). These file objects are then mapped to a file system representation in which database tables are represented as directories, database rows as sub-directories, and entries within each row represented as files within the subdirectories. (Col. 7, ll. 35-50, Figs. 1 and 5C).

For the application program to access the information, the database is mapped to a namespace (e.g., "x:") such that it appears as a local file system. (Col. 5, ll. 39-46). Thereafter, as the user expands the database namespace and expands the directories (corresponding to tables) and subdirectories (corresponding to table rows) to access a data object, file requests are sent to the interface. (Col. 6, ll. 23-39; Col. 7, ll. 35-50). The file request may also contain a filename to be used as an index by the extension module for finding the requested file in a look-up table. (Col. 9, ll. 23-26).

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The requests from the client use the NFS protocol to identify the desired file. (Col. 9, ln. 55 to Col. 10, ln. 1). In particular, a "file handle" is presented as a 32-byte value. (Col. 9, ln. 66 to Col. 10, ln. 1; Fig. 9). Bytes 1-8 of the file handle identify the request as an request from the database namespace. (Col. 10, ll. 8-13; Fig. 9). Additional bytes identify the extension module managing the file handle, the database table and row of the file, and an information node table and row that includes a description of file attributes. (Col. 10, ll. 16-41).

Balabine fails to disclose, however, any method in which relationships linking attributes of the objects are defined and include pointers linking each object having a defined attribute relationship with another object, and particularly wherein the defined relationships are other than parent-child relationships of a directory hierarchy. In fact, Balabine appears to teach the opposite in that all files are presented to, and selected by, a user in a parent-child relationship within a directory hierarchy. Moreover, accessed database objects are stored and located in a database according to a parent-child directory hierarchy according to tables, rows within the tables, and entities within rows.

Balabine also fails to disclose or suggest the receipt of a client request in the format of a location path expression that includes a view name which is a particular defined name of a particular one of the attribute relationships, and at least one path element defining an object related by the defined attribute relationship associated with the view name. Instead, Balabine describes a system in which a user makes requests according to a file directory, and that such requests are sent to an interface according to an NFS protocol. The protocol itself appears to tell a server what directories and tables to look in by merely identifying the type and handler of request, the directory hierarchy (i.e. table and row) usable to locate the file, and a description of where file attributes are located. Balabine fails, however, to disclose any system in which any of the request includes a particular view name of a particular predefined attribute relationship, or any object related to the requested file by the particular attribute relationship that is specified. In fact, it is difficult to imagine how the client in the Balabine system could include a view name of an attribute relationship linking database objects inasmuch as "the application is unaware that the file system objects came from [the database]". (Col. 5, ln. 66 to Col. 6, ln. 1).

In view of the foregoing reasons, as well as those discussed during the interview, Applicants respectfully submit that the other rejections to the claims are now moot and do not, therefore, need to be addressed individually at this time. It will be appreciated, however, that

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this should not be construed as Applicants acquiescing to any of the purported teachings or assertions made in the last action regarding the cited art or the pending application, including any official notice. Instead, Applicants reserve the right to challenge any of the purported teachings or assertions made in the last action, including any official notice, at any appropriate time in the future, should it arise.

For at least the foregoing reasons, Applicants respectfully submit that the pending claims are neither anticipated by nor made obvious by the art of record. In the event that the Examiner finds and remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, the Examiner is requested to contact the undersigned attorney.

Dated this 4 day of May, 2006.

Respectfully submitted,

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